

REMARKS

Claim Status

Claims 1 and 4-12 are currently pending, with claims 1 and 11 being in independent form. No new matter has been added. Reconsideration of the application is respectfully requested.

Overview of the Office Action

Claims 1 and 9-10 stand rejected under 35 U.S.C. §103(a) as obvious over U.S. Patent No. 5,699,481 (“*Shlomot I*”) in view of U.S. Patent No. 5,694,521 (“*Shlomot II*”). Claims 4-6 and 11 stand rejected under 35 U.S.C. §103(a) as obvious over *Shlomot I* in view of *Shlomot II*, and further in view of U.S. Patent No. 5,825,771 (“*Cohen*”). Claim 7 stands rejected under 35 U.S.C. §103(a) as obvious over *Shlomot I* in view of *Shlomot II*, further in view of *Cohen*, and further in view of U.S. Patent No. 5,897,613 (“*Chan*”). Claim 8 stands rejected under 35 U.S.C. §103(a) as obvious over *Shlomot I* in view of *Shlomot II*, and further in view of U.S. Patent No. 5,642,466 (“*Narayan*”). Lastly, claim 12 stands rejected under 35 U.S.C. §103(a) as obvious over *Shlomot I* in view of *Shlomot II*, and further in view of U.S. Patent No. 5,696,875 (“*Pan*”).

Applicants have carefully considered the Examiner’s rejections and the comments provided in support thereof. For the following reasons, Applicants assert that all claims now presented for examination in the present application are patentable over the cited art.

Patentability of Independent Claim 1 under 35 U.S.C. §103(a)

The Examiner (pg. 4 of the Office Action) acknowledges that *Shlomot I* fails to teach or suggest that “the further processing comprises concatenation processing used to compact two successive frames into a pseudo-frame having a reduction ratio greater than or equal to two,” as

recited in independent claim 1, and cites *Shlomot II* for this feature. The combination of *Shlomot I* and *Shlomot II*, however, fails to achieve Applicants' claimed method; there is nothing in *Shlomot II* to cure the above-noted deficiency in *Shlomot I*.

The Examiner (pg. 3 of the Office Action) asserts that:

Shlomot I discloses altering speech data in response to various buffer conditions (col. 6, lines 14-56; and Col. 7, Lines 10-23). In Shlomot I the basic unit of speech data correction is a frame, specifically a coded speech frame in a coded speech package or CSP (Col. 6, Line 38-56). Shlomot I also mentions that concatenation processing can be used in response to buffer filling levels (Col. 7, Lines 24-61).

Applicants disagree with the foregoing assertion.

Shlomot I (col. 7 lines 10-14) states that "a strict set of [thresholds] may be used when the correction starts so that only silence frames can be repeated or deleted. Then, after certain number of frames during which no silence frame is found, the threshold can be relaxed so that unvoiced frames can be picked to achieve correction". *Shlomot I* thus suggests the use of different thresholds. However, the thresholds taught in *Shlomot I* have nothing to do with the filling level of a buffer but, rather, they are related to the thresholds used to identify the activity in a frame. For instance, *Shlomot I* (col. 7, lines 7-9) explains that "there should be enough silence or unvoiced units in the 100 frames to perform collection. A more robust system can then be achieved by adaptively adjusting the classification threshold". *Shlomot I* clearly teaches adjusting the threshold for determining whether or if a frame is silent or unvoiced.

In fact, *Shlomot I* (col. 6, lines 57-65; Abstract) specifically describes that the parameters used for the classification of the frames for the correction (i.e. frame suppressed or repeated) are the energy and the spectral slope. *Shlomot I* additionally describes the deletion or the repetition of low energy, silent or unvoiced frames (See Abstract). Consequently, col. 7, lines 10-23 of *Shlomot I* suggests no more than the observation of the occurrence of candidate frames to be

deleted (or more generally for correction) during a predetermined time period and the appropriate modification of the classification threshold that is used to select the frames to be deleted. For example, if after a certain number of frames, no silent frame for deletion has been found, then the threshold can be “relaxed” so that unvoiced frames can also be selected for correction.

However, *Shlomot I* fails to teach or suggest the use of additional thresholds with respect to the filling thresholds S (Slow mode, that is in the case of overabundance), N (normal mode) and F (Fast mode) as recited and claimed, i.e., the step of implementing concatenation processing on two successive frames to compact the two frames into a pseudo-frame of length less than or equal to one frame whenever the filling level lies between the second threshold and a third threshold, a length reduction ratio of the pseudo-frame relative to the length of the two frames being greater than or equal to two, as recited in independent claim 1. Therefore, *Shlomot I* fails to teach or suggest independent claim 1 for at least this reason.

Moreover, the Examiner (pg. 8 of the Office Action) asserts that “[w]ith respect to Claims 9-10, Shlomot ... discloses threshold adaptation based on an additional number of received time frames during a congestion period” (*Col. 7, Lines 10-23*). However, even though *Shlomot I* teaches the adaptation of thresholds, the adaptation disclosed in *Shlomot I* relates to the classification of thresholds but not to applicants’ claimed “filling” thresholds. *Shlomot I* thus fails to teach or suggest adapting the filling thresholds (that is the first, second and third thresholds of the claimed invention) of the buffer as a function of the length of time passed with a filling level above a given threshold. As described at pg. 23, line 36 thru pg. 24, line 7, this characteristic that is encompassed by the claimed invention permits the accommodation of different call contexts and real time fluctuations during a call. The system disclosed in *Shlomot I*

fails to provide such advantages in the manner achieved by the claimed invention. *Shlomot I* therefore fails to teach or suggest independent claims 1 and 9 for this additional reason.

The Examiner (pg. 3, last line to pg. 4 of the Office Action) asserts that:

Shlomot I also mentions that the concatenation processing can be used in response to buffer filling levels (*Col. 7, Lines 24-61*). Thus, it is Shlomot I that discloses the frame-based processing recited in the invention.

Applicants also disagree with this assertion.

Shlomot I (col. 7, lines 29-36) states that “[w]hen the local decoder is faster, i.e. insertion of data is needed, the excitation modification operation **130** waits until the excitation signal **125** has low energy before duplicating the silence or unvoiced sub-frame (or any other correction unit) and concatenating it to the sample stream of the excitation signal **125**. As a result, for a 208 sample frame, the frame will now have 208 samples+52 samples=260 samples to synthesis and output”. *Shlomot I* (col. 7 lines 29-36) thus teaches concatenation that corresponds to the insertion of data; that is, when missing speech packets are detected. However, such a concatenation of data does not correspond to the concatenation within the meaning of Applicants’ claimed invention, which is directed to limiting the data in a FIFO buffer during the occurrence of an overabundance of frames.

Moreover, the Examiner (pg. 4, 1st ¶ of the Office Action) asserts that:

Shlomot I contemplates additional frame processing based on a set of thresholds.

Applicants also do not agree with this assertion.

As previously stated, *Shlomot I* fails to teach or suggest the use of several thresholds related to the filling level during the occurrence of an overabundance of frames. Moreover, *Shlomot I* only teaches a single type of processing in the case of an overabundance of frames, i.e., the deletion of frames. *Shlomot I* teaches that only different classification thresholds are used to select a frame to be deleted (silent or unvoiced frame or even a frame each 100 frames). Consequently, it is highly

improbable that the skilled person would consider the teachings of a document such as *Shlomot II*, which teaches a very different type of processing, were the skilled person seeking, *arguendo*, to solve the problem solved by the claimed invention regarding the processing of an overabundance of frames. Notwithstanding, the Examiner specifically cites *Shlomot II* to cure a shortcoming of *Shlomot I*. The combination of *Shlomot I* and *Shlomot II*, however, fails to achieve Applicants' claimed method; there is nothing in *Shlomot II* to cure the above-noted deficiency in *Shlomot I*.

At pg. 3, last paragraph of the Office Action, the Examiner asserts that *Shlomot I* teaches that the basic unit of speech data correction is a frame. Indeed, *Shlomot I* (col. 3 line 67 thru col. 4, line 1 and col. 6, lines 46-56) teaches that the units considered by the speech decoder to create or discard speech information can be frames, sub-frames, samples or any other multiplicity of samples. Nevertheless, *Shlomot II* teaches computation of the length of sequences to be combined (L^*) before actually combining data sequences so as to maximize the correlation between the combined sequences. Thus, consistent with the teachings of *Shlomot II*, the length of the sequences that are combined is not limited to the length of a frame (see col. 3, lines 22-27). Consequently, in view of the failure of *Shlomot I* to teach the limitation of corrections to the frame level and that *Shlomot I*, instead, provides a reason to perform corrections at the sample level (in the manner suggested in *Shlomot II*), even assuming, *arguendo*, that the skilled person would have a reason to combine *Shlomot I* and *Shlomot II*, the system achieved by the combination of *Shlomot I* and *Shlomot II* would not perform concatenation at a frame level in the manner recited and claimed in Applicants' instant invention. As a result, the combination of *Shlomot I* and *Shlomot II* fails to achieve a system in which "the further processing comprises concatenation processing used to compact two successive frames into a pseudo-frame having a reduction ratio greater than or equal to two," as recited in independent claim 1. In view of the

foregoing, reconsideration and withdrawal of the rejection under 35 U.S.C. §103(a) are respectfully requested, and a notice to that effect is earnestly solicited.

Patentability of Independent Claim 11 under 35 U.S.C. §103(a)

The foregoing comments relating to the failure of *Shlomot I* and *Shlomot II* to teach or suggest the concatenation of two successive frames into a pseudo-frame are equally pertinent to demonstrating the patentability of independent claim 11.

The Examiner (pg. 8 of the Office Action) acknowledges that the combination of *Shlomot I* and *Shlomot II* fails to teach or suggest “the use of a playback buffer,” as recited in independent claim 11, and cites *Cohen* for this feature. The combination of *Shlomot I*, *Shlomot II* and *Cohen*, however, fails to achieve Applicants’ claimed system; there is nothing in *Cohen* to cure the above-noted deficiency in *Shlomot I* and *Shlomot II*. That is, *Cohen* fails to teach or suggest “concatenation of two successive frames into a pseudo-frame” in the manner required by Applicants’ amended independent claim 11.

In view of the foregoing, independent claim 11 is patentable over the combination of *Shlomot I*, *Shlomot II* and *Cohen* on at least this basis. Withdrawal of the rejection under 35 U.S.C. §103(a) is therefore requested, and a notice to that effect is earnestly solicited.

Patentability of the Dependent Claims over the Prior Art under 35 U.S.C. §103

The Examiner cites *Cohen* in an attempt to cure the shortcomings of the combination of *Shlomot I* and *Shlomot II*, i.e., “decoding processing in a cyclical manner relative to the content of the first buffer memory” and “a fake frame is not generated when a missing or erroneous frame is detected for a frame on which an absence of samples has already been detected” as

recited in dependent claims 5 and 6, respectively. The Examiner cites *Chan* in an attempt to cure the shortcomings of the combination of *Shlomot I*, *Shlomot II* and *Cohen*, i.e., “a previously stored frame to determine the generation of a correction frame,” as recited in dependent claim 7. The Examiner cites *Narayan* in an attempt to cure the shortcomings of the combination of *Shlomot I* and *Shlomot II*, i.e., “the weighting scheme for [combining] speech segments,” as recited in dependent claim 8. Lastly, the Examiner cites *Pan* in an attempt to cure the shortcomings of the combination of *Shlomot I* and *Shlomot II*, i.e., “averaging combined speech segments,” as recited in dependent claim 12. However, each of these references fails to cure the deficiency of the method achieved by the combination of *Shlomot I* and *Shlomot II*, because *Cohen*, *Chan*, *Narayan* and/or *Pan*, individually or in combination, fail to teach or suggest concatenation of two successive frames into a pseudo-frame as recited in amended independent claim 1. Therefore, dependent claims 5-8 and 12 are patentable.

In view of the patentability of independent claims 1 and 11, for the reasons presented above, each of dependent claims 4-10 and 12 is patentable therewith. Moreover, each of these claims includes features which serve to even more clearly distinguish the invention over the applied references.

For example, with respect to dependent claim 6, the Examiner asserts *Cohen* (col. 9, lines 21-25) teaches the additional recitations of claim 6. Specifically, col. 9, lines 21-23 of *Cohen* states “the artificially added frame is selected as the one to be removed. Therefore, in the presence of an overabundance of frames, *Cohen* teaches the deletion of frames that have been artificially inserted due to the detection of a missing packet, where *Cohen* teaches the deletion of the frames that have been artificially generated on a “priority” basis.

However, *Cohen* fails to teach or suggest the non-generation of a fake frame, within the context of an absent frame, when a missing or an erroneous frame is detected for a frame on which an absence of samples has already been detected. Such a claimed feature is implemented to combine the actions of the first and the second processes of the invention as described at pg. 18 lines 6-22 of the instant specification.

In accordance with the claimed invention, it is thus possible to relate the additional recitations of dependent claim 6 to the necessity to process each frame between the second and the third thresholds. The basis for performing the recitations of dependent claim 6 is described at pg. 21, lines 14-29 of the instant specification, which describes that silent frames are discarded between the first and the second thresholds and that two consecutives non-silent frames are concatenated. None of the cited references teach or suggest different processing as a function of both the filling level with respect to different thresholds in the presence of an overabundance of frames and the nature of the frames. The combination of the cited art therefore fails teach or suggest independent claim 6 for at least this additional reason.

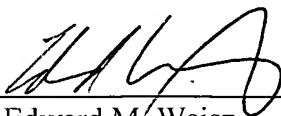
Conclusion

Based on all of the above, it is respectfully submitted that the present application is now in proper condition for allowance. Prompt and favorable action to this effect and early passing of this application to issue are respectfully solicited.

Should the Examiner have any comments, questions, suggestions or objections, the Examiner is respectfully requested to telephone the undersigned in order to facilitate reaching a resolution of any outstanding issues.

It is believed that no fees or charges are required at this time in connection with the present application. However, if any fees or charges are required at this time, they may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,
COHEN PONTANI LIEBERMAN & PAVANE LLP.

By  _____
Edward M. Weisz
Reg. No. 37,257
551 Fifth Avenue, Suite 1210
New York, New York 10176
(212) 687-2770

Dated: December 7, 2007